A RELATION

Of a very Sudden

AND

Extraordinary Cure

of a Perſon Bitten

BY A

VIPER,

By the Means of ACIDS.

Together with

Some Remarks upon Dr. *Tuthill's* Vindication of his Objections againſt the Doctrin of Acids.

In which are contain'd ſeveral things in order to the further clearing of the ſaid Doctrin.

By JOHN COLBATCH, *Member of the College of Phyſicians*, London.

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To the unknown

Dr. COLBATCH,

Upon his ſeveral

Moſt Ingenious Tracts in PHYSIC,

Eſpecially that of

ALKALIES and ACIDS.

PHYSIC for Ages paſt has grop'd her way
In Paths of Darkneſs, without any Ray
Of certain Truth, and ſtill was going aſtray:
When *Colbatch* roſe, who with reviving Light
Diſpel'd the Clouds, and chas'd away the Night.
By him th' important Secret is reveal'd,
Thro Fraud and Ignorance ſo long conceal'd.
No ſordid hopes of Gain e'er ſway'd his Mind,
His only Aim's the Good of Human kind;
Who firſt with Pains and Labor dug the Oar,
Then freely gave us all the Golden Store.
Name,
Let Juggling *Quacks*, grown envious of thy
Combine together to obſcure thy Fame;
Such are the Myſt'ries which thou doſt unfold,
They'l write thy Name in Characters of Gold;
To Thee alone Mankind's indebted more,
Than all the Doctors that have gon before.

J. C. junior.

TO THE READER.

I Have in all my Writings taken Truth for my Guide, which is the Soul of an Undertaking, and a Duty that ought to be ſtipulated by every Writer, both with God and Man; and this I may ſay, I have not wanted courage to ſpeak it, nor means to diſcern it.

The oppoſition I have met with has bin almoſt inſupportable, Truth at its firſt appearance never wanting multitudes of Oppoſers; but, thanks to God, the Eyes of the World begin to be open'd, and the new Doctrin I have advanced has gain'd ſo much ground, that few Authors in their own life time have ſcarce ſeen the like. This unwonted and unexpected Incouragement that I have met with, has fill'd me with ſuch a ſenſe of Gratitude, that at preſent I am not able to expreſs it; neither can I better manifeſt it, than by proſecuting the Work I have begun, with all the diligence and induſtry I am capable of, and this I oblige my ſelf to do.

Reaſon is the true Touchſtone by which we ought to examin every thing; and according as any thing agrees or diſagrees with it, we ought either to imbrace or reject it. I remember that Prodigy of Nature, the Learned Mrs. Ann Bay-

 nard,

nard, *did once in my hearing ſay*, That Reaſon was that eternal Standard, which God Almighty, as a Ray of his own Image, has impreſſed on Man, to the election or diſlike of what may hurt or ſuccor him; and where this is rais'd and improv'd, it makes him an Angel, but where ſunk and depreſs'd, a groveling Brute.

I do proteſt I never yet advanced any thing before I had weigh'd it in the Balance of the beſt Reaſon that God has given me; and leſt Reaſon alone ſhould deceive me, and thereby ſuffer me to impoſe upon the World, I have always join'd Experience to it; ſo that both being combined together, I could not well be deceived my ſelf, nor lead others into error. And I am apt to believe, that if People would but lay aſide their Prejudices, and conſult their Reaſon, I ſhould not have one Enemy. But to my no ſmall grief, I have heard ſome Phyſicians of no ordinary reputation, poſitively declare, That Authority, and not Reaſon, was what they depended upon. Of theſe men I have little hopes; but ſince they won't hearken to my Reaſons, let them but inquire into the ſucceſs of my Practice; and if they find by the means of Acids *I am able to cure thoſe Diſtempers which are not to be cur'd by* Alkalies, *I hope it will at laſt cure them of their Stepticiſm.*

From one Generation of Phyſicians to another it has conſtantly bin handed down, that the Gout *was a Diſtemper not to be cur'd; and in ſpite of all the Noiſe the laſt Age has made about experi-*

mental Philoſophy, no man ever went out of the common Road to try the Truth or Falſhood of this Poſition. But now it evidently appears that the Gout is not ſuch a Fury, but may with eaſe be overcome by proper and powerful Acids; *and there is ſcarce any part of* England, *but one or other can experimentally atteſt the truth of it. Now if it evidently appears that my Predeceſſors have bin notoriouſly ignorant as to the Cauſe and Cure of ſo common a Diſtemper, it is not unreaſonable to believe they have bin ſo in other Caſes, nay it is moſt certain they have: and there are many honeſt Gentlemen of the Faculty who are not aſhamed to acknowlege it, and that not only in words, but by the alteration of their Method of Practice; tho there are another ſort, who with good ſucceſs have of late made uſe of* Acids *plentifully, and at the ſame time given me all manner of opprobrious Language: but I thank God I am out of their reach, and tho they perſiſt in their ingratitude, I ſhall ſtill indeavor to ſerve them to the utmoſt.*

I know there are many who will read theſe Papers with no other deſign than to find faults: but the Barking of theſe Critics will never diſturb me, becauſe I have undertaken nothing but with a deſign to ſerve Mankind; and I doubt not, in ſpite of all the imperfections to be met with, there are many Candid, Ingenuous men, who will make as favorable a conſtruction of this, as of my former Undertakings. And if ſuch are pleaſed, I care not what the envious Critics ſay.

JOHN COLBATCH.

A Relation *of a very ſudden and extraordinary Cure of a Perſon bitten by a* Viper, *by the means of Acids.*

ON Saturday *March* the 26*th*, one Mr. *Stringer* a Chymiſt in *Villers-ſtreet York-buildings*, was ſeeing a Collection of Rarities that were expos'd to public view in *Stocksmarket*; among others there was a living *Viper* kept in a Glaſs of Bran. The perſon who ſhew'd the Collection, upon ſome inducement or other, took the Viper out of the Glaſs to ſhew Mr. *Stringer*; but handling him more rudely than he ought, inrag'd the Viper, and he bit him by the Finger; and from the place into which the Tooth entred, there iſſued forth a few drops of Blood: it was juſt above the upper joint of the fore Finger where the Tooth entred.

At firſt the man, whoſe name is *Philipſon*, made nothing of it, but in a little time his Finger ſwel'd and pain'd him excedingly; upon which, by ſome body's direction, a *Hot Iron* firſt, and afterwards *Venice Treacle* and *Oil of Vipers* were applied to the part; but the ſymptoms not abating, Mr. *Stringer* adviſed him to ſeek out for further help: he perceiving Mr.

Stringer had ſome knowlege of the matter, deſir'd his aſſiſtance; upon which Mr. *Stringer* ſent to Mr. *Francis Molt* a Chymiſt for ſome *Salt of Vipers*; but Mr. *Molt* not being at home, and that not being to be had, he ſent to another place for ſome *dulcified Spirit of Niter*, a large quantity of which he gave him in *Claret*, and with the reſt he embrocated his Finger and Hand, which at the preſent afforded him ſome relief, he being then in extreme Agonies, and had ſuch a trembling in his Hand and Arm as is ſcarce conceivable. But in a little time the Symptoms returning, the dulcified Spirit of Niter not being powerful enough to overcome ſo ſubtil a Poiſon, Mr. *Stringer* again preſt him to ſeek for further help: upon which he told Mr. *Stringer* he had a Brother in *Pal Mal*, an Apothecary, to whom he would apply for advice: ſo Mr. *Stringer* and he went to his Brother in a Coach.

When he got there, the Symptoms were ſo aggravated, that his Brother was under great concern for him, and propos'd ſending for Dr. *Sloan* and ſeveral others; but Mr. *Stringer* mentioning me, he readily aſſented to take my advice: upon which they got into the Coach, and drove to Mr. *Stringer*'s Houſe, by which time the man was grown ſo weak that he could ſcarce ſtand. After they had gotten him into a Room, they ſent for me; but I not being at home, Mr. *Stringer* ſent for Mr. *Alexander Small* a Surgeon in *New Round Court*,

Court, a young Man of great Honesty and Industry, and one whom I frequently imploy.

Mr. *Small* having never seen any thing of the like nature before, was at a stand: he first thought of scarifying the Finger, but when he considered that the Tumor had extended it self even to his Shoulder, in which he had very acute Pains, and from the other Symptoms that attended him, concluding the Poison had dilated it self thro the whole mass of Blood, he altered his first resolution, and instead of scarification made use of the following method. Before I give an account of which, I shall take notice of his circumstances, as related to me by Mr. *Small*, Mr. *Stringer*, and Mr. *Philipson* Apothecary, the man's Brother. His Hand and Arm, as above said, were extremely swell'd and inflam'd, and full of pain; but the pain in his Finger where the Bite was, and that in his Shoulder much exceded the pain in other parts: he had a great Giddiness, and Faintness, insomuch that he could scarce sit without being held in the Chair; an extraordinary and violent Strangury also attended him, with cold sweats, and great disorders in his Stomach and Bowels, and his Countenance turn'd extremely yellow, and he stretch'd out, almost, as dead. Mr. *Small* and Mr. *Stringer* provided a good quantity of my *Elixir Vitrioli*, an account of which and its preparation may be met with in the last Edition of my *Essay of Alkaly and Acid.*

With this Elixir Mr. *Small* embrocated the Fingers, Hand and Wriſt for near half an hour together, and two or three times in the ſaid ſpace he dipp'd the end of the bitten Finger in plain Oil of *Vitriol*: in the interim he gave him two or three Drams or more of the *Elixir Vitrioli* inwardly in a large quantity of water, when the man finding a great propenſity to vomit, Mr. *Small* adviſed him to put his Finger in his Throat and help it forwards; after he had vomited plentifully, Mr. *Small* plied him afreſh with the *Elixir Vitrioli* in water: the quantity he took after his vomiting Mr. *Small* gueſſes to be near, if not quite, half an ounce.

In leſs than half an hour after Mr. *Small* came to him, all the Symptoms, except the ſwelling of his Hand and Arm, which was ſenſibly leſſen'd, were totally vaniſhed, and he able to walk from *York-buildings* to the *Grecian* Coffee-houſe in *Eſſex-buildings*, to find me out for further directions in the Matter. Now the violence of the Symptoms being abated and gon, I preſcrib'd him more temperat Acids than thoſe he had before taken, and that had bin applied to the affected parts.

℞ *Fol. Rutæ contuſ. manip. duos; Rad. Angelicæ Hiſpan. pul. unc. duas; Micar. Panis albi unc. quatuor; Aceti acerrimi lib. duas: coquantur ad debitam conſiſtentiam, cui adde Ol. Scorpion. unc. duas. M. f. Cataplaſma.*

* ℞

℞ *Elix. Vitrioli dracm. duas; Sp. Vini Rect. unc. duas, M. f. Mixtura.*

℞ *Fol. Rutæ manip. unum; Rad. Serpentariæ Virgin. dracm. ſex; Angel. Hiſpan. unc. unam; Petaſitidis unc. unam ſemis; Vini albi, Aceti acerrimi, ana lib. unam. Infunde calidè per horam, & coletur.*

Sig. the Infuſion.

℞ *Ol. Vitrioli dul. per digeſt. fact. unc. ſemis.*

Sig. Dulcified Oil of Vitriol.

I order'd the man to go to his Lodging, which was in *Black Friers*; and becauſe his Brother could not get the foremention'd things ready under three or four hours, I adviſed him as ſoon as he came home, to take three ounces of Treacle Water, (in my opinion one of the beſt Medicins in the *London Diſpenſatory*) and as ſoon as he had taken it, to go to bed.

I order'd the *Cataplaſm* ſhould be applied warm to the Hand and Arm as far as the ſwelling reach'd every ſix hours; and before applying the Cataplaſm, that the parts ſhould be well embrocated with the Mixture.

Of the Infuſion he took four Ounces every four hours.

When-

Whenever he was thirſty, I adviſed him to take twenty Drops of the dulcified Oil of Vitriol in a draught of White Wine and Water.

On Sunday morning about eleven a Clock I went to viſit him, and when I came to his Lodgings, I found Dr. *Sloan* with him; the Doctor ſaid the Method that had bin uſed was new, but that the Man was in a very good condition, and out of all danger. He had ſlept well the whole night, and was not in the leaſt feveriſh, neither had he any diſorder upon him, only a very ſmall pain in his Finger, the ſwelling of his Hand and Arm being greatly abated.

I order'd the continuing of his former method, which I had no reaſon to vary. But Dr. *Sloan* propoſed, that if his Infuſion ſhould make him puke, as it once had done, then inſtead of it, he ſhould at the ſame intervals take half a dram of *Virginian Snake-Root* in pouder, drinking afterwards two or three ounces of Treacle-water, ſweetned with Syrup of Gilliflowers; which I conſented to, it no way thwarting the Methods before taken.

At night I viſited him again, and found him as brisk and well as if nothing had ail'd him; the Infuſion had not diſagreed with him, and therfore he took not the Pouder of *Snake-Root*: but I mix'd the Treacle-water and Syrup of Gilliflowers with the remaining part of the Infuſion, and order'd him to take four ounces of it morning and evening only, ſo long as it laſted.

The

The next day I visited him again, when I found him up and eating his Dinner very heartily. I then order'd him to continue the uſe of the Cataplaſm ſo long as he found the leaſt ſwelling in any part, and then diſmiſſed him from my care, there being not any need of my further attendance.

A ſmall ſwelling of his Finger continued for ſome time after, but without trouble or pain.

I believe I may without vanity ſay, that conſidering the ſymptoms attending this man, which were as ſevere as poſſible, and that he ſurviv'd, there has not bin a more extraordinary Cure wrought; nor ſuch Symptoms, raiſed upon the like occaſion, ever taken off in ſo ſhort a ſpace.

Now did the poiſon of Vipers conſiſt in a Volatil Acid, as ſome would make us believe, how is it conceivable that theſe dreadful Symptoms could be ſo ſoon taken off, by giving more Acids, and that in ſo extravagant a quantity as they were at firſt given by Mr. *Stringer* and Mr. *Small?* Nay, had the Poiſon bin an Acid, it is very reaſonable to believe, that the more Acids they had given him, the more his Symptoms would have bin aggravated. Wheras, on the contrary, it plainly appears, that by the repeated large quantities they gave him, the Symptoms were ſo ſoon abated, that it is almoſt paſt belief.

I cannot but obſerve, that in the ſtrange relation Dr. *Stubbs* gives of the ſevere Symptoms attending the man at *Warwick* that was bitten by an Adder, the only thing that ſav'd his life, was the *Mixtura ſimplex* that was given him, which is a moſt noble Acid: but this man had not the *Mixtura ſimplex* given him in ſuch quantities, or in any proportion to the Acids Mr. *Philipſon* took; nor was his Cure ſo expeditious or ſo eaſy, as may be ſeen in Dr. *Stubbs*'s Relation.

The hot Iron was as uſeleſs in this, as in that Caſe; and I am apt to believe never dos any ſervice at all, unleſs applied at the very inſtant the Bite is received.

Mr. *Philipſon* ſuck'd his Finger as ſoon as he was bit, and to that a certain Phyſician attributes a great deal, and ſays it help'd to expedite the Cure. Wheras there are ſeveral Authors of undoubted credit, who have given Relations of perſons that have died by ſo doing; and if this man had ſuck'd out any great quantity of the Poiſon with his mouth, how came the whole Hand and Arm to be immediatly affected in ſo dreadful a manner?

Lemery in his *Courſe of Chymiſtry* dos confeſs, that the *Viper* abounds more with volatil Alkalious Salts, than moſt other Creatures, and aſſigns a very good reaſon for it, *viz.* the extraordinary cloſeneſs of the cutaneous Pores, which makes them not perſpire ſo freely as other Creatures. Nay he confeſſes, that their

Poiſon

Poiſon conſiſts in the emiſſion of a very great quantity of Volatil Salts, at the time of their being inrag'd or anger'd; but then to ſquare himſelf with the vulgar Opinion, he tells us, that theſe volatil Alkalious Salts are inſtantaneouſly, at the time of their emiſſion, during the Vipers ſhort rage, turned into Acids of the moſt volatil nature: This is ſuch Jargon that nothing can be imagined like it. The tranſmutation of Metals (even to thoſe who are the greateſt enemies to it) is a mere jeſt to it.

If we look into *Moſes Charras* his account of the *German* that was bit at his houſe, after all the pother he makes about his volatil Salt of Vipers, the Cure of that man was not perform'd without a great deal of hazard and trouble, and the intermixture of many other Medicins, beſides that of the volatil Salt, even Acids, as Treacle-water, and ſlices of Citrons with Sugar; but theſe Acids could not ſo effectually operat, as otherwiſe, it's probable, they would have done, becauſe obtunded by the Volatil Salt ſo frequently given him. But *Hoffman* in his *Clavis Pharmaceut. Schroderi, pag.* 45, *&* 46. (as I have elſewhere obſerved) wholly attributes the Cure of this man to the Juice of Citrons, after all other things had proved ineffectual; and ridicules *Charras* for feigning the Poiſon to be an Acid: For if this were ſo, ſays *Hoffman*, how could the *Juice of Citrons*, which is an Acid, afford the Patient any relief?

I ſhall conclude this ſubject with one Obſervation, *viz.* That Phyſicians get more reputation by keeping their Patients a long time in hand, and in continual danger of their lives, than by quick and expeditious Cures. As for inſtance:

One Phyſician has a Patient ſick of a Fever; he takes ſuch a method that his Patient lies a month in continual danger and hazard, but at laſt recovers and gets abroad: he then proclaims to all the Miraculouſneſs of the Recovery, and the Danger he was in; upon which inquiry is made who was the Phyſician? he immediatly replies, the famous Doctor ſuch a one; and if he be a Perſon of any Note, the Phyſician's work is done.

Another Phyſician has a Patient with the very ſame Fever; this Phyſician takes care to obviat all Symptoms, and his Patient is abroad in eight or ten days, and perhaps has never bin in the leaſt hazard of his Life. He, inſtead of magnifying the skill of his Phyſician, tells his Friends, my Phyſician ſays I have had a Fever, ſuch as my Neighbor ſuch a one had, but I believe he is miſtaken, mine could be no more than a Cold, which would have gon off had I done nothing at all; and this is frequently the Reward that honeſt men meet with. And I doubt not but the ſame reflections will be made upon Mr. *Philipſon*'s Cure, *viz.* that he would have bin well in the ſame time, had nothing at all bin done to him.

Several

Several Phyſicians have publicly ſaid, that a prick with a Needle, or the point of a Lancet in ſome parts, would occaſion as dreadful Symptoms as this man had. Suppoſing this true, I believe every body will allow that the taking off ſuch Symptoms in ſo ſmall a time, let the occaſion of 'em be what it will, is not ordinarily ſeen; and Dr. *G.* with the prick of a Lancet only, was hurried away into another World, who yet was as likely to make the forementionʼd Objection, to undervalue any thing done either by me, or upon the Baſis of my Hypotheſis, as any one now living.

I will not pretend to juſtify Mr. *Stringer*'s conduct in many things; but he being greatly concernʼd in the firſt and moſt material part of what was done for Mr. *Philipſon* in order to his Cure, I could not in juſtice but make uſe of his Name as he deſervʼd. But for Mr. *Small* the Surgeon, he is of an unblemiſhʼd Reputation, and as hopeful a young Man as any of his Profeſſion, whoſe Teſtimony alone is ſufficient upon ſuch an occaſion; but the Teſtimonies of Mr. *Philipſon* the Apothecary and the man himſelf being joinʼd to his, makes the matter of fact unqueſtionable.

REMARKS

REMARKS upon Dr. *Tuthill's* Vindication of his Objections againſt my Hypotheſis.

Worthy Sir,

YOU are the only fair Antagoniſt I ever had to do with, and therfore I ought to treat you with all the tenderneſs and reſpect imaginable. You cannot but be ſenſible that I walk in an unbeaten Path; for which reaſon if now and then I am out of my way, I am the more excuſable. It's true, ſome few other Phyſicians have heretofore uſed *Acids* in the cure of ſeveral Diſtempers; and the friendly correſpondence I have had with ſome of them has bin of great uſe to me: but the aſſiſtance I have had from them as to the eſtabliſhing of my Principles, has bin very inconſiderable. If I have made any falſe ſteps, none of them are obliged to anſwer for me; and if I have made any good ones (which I cannot forbear flattering my ſelf that I have) it is owing to my own labor and induſtry; and tho I was not bred up at the Univerſity, yet I have taken as much true pains to inform my ſelf in all the Parts of Phyſic, as perhaps any man ever did.

Let

Let an Hypotheſis be laid down with all the caution and care in the World, and eſtabliſh'd upon never ſo certain a Foundation, there will be ſtill ſome room left for men to object; and he that will ſpend his time in anſwering all trifling Objections againſt a thing that is new, muſt lead but an uneaſy life. Yet, Sir, I do not mention this in relation to you; what Objections you have raiſed have ſeeming weight in them, and therfore I have taken the trouble to clear my ſelf of 'em as well as I can.

I no where tell you, that I have ſaid all that may be ſaid on behalf of my new Hypotheſis, this requiring ſeveral years to perform. But I have already ſaid ſo much, that I think I may boldly declare, 'tis the beſt and cleareſt Hypotheſis in Phyſic now extant, and that upon the foundation of it a man may with greater certainty attempt the Cure of moſt Diſeaſes, than upon any other yet made public.

The preſent buſineſs of my Profeſſion, together with another Work I am ingag'd in, viz. *A general Treatiſe of Fevers*, dos ſo take up my time, that I cannot make any large Remarks upon your further Objections; and were it not that I am willing to let the World ſee I have a greater eſteem for you than for thoſe Scoundrels that have hitherto appear'd in Print againſt me, for the preſent I ſhould have bin ſilent. For I muſt aſſure you, I do not think my Hypotheſis at all ſhaken by what you have

now ſaid, there being little or nothing more than was contain'd in your firſt Objections. However I ſhall tranſcribe your freſh Objections in the order I find 'em, and make my Remarks in the ſame manner.

Reply. *If you pleaſe to compare the Alkalin Spirit that you extracted from the Conſumptive Man's Blood, with that which the healthy Blood afforded, you'l find no great diſproportion, eſpecially if you conſider the* Caput mortuum *of the ſound Blood. For you ſay that it being broken into ſmall Atoms, each Atom appear'd to be ſo many little Bodies of Fire in your Microſcope. That there is not the leaſt ſpark of Fire in the Blood, I ſhall indeavor to prove anon; wherfore 'tis not irrational to ſuppoſe that thoſe lucid Atoms were of the Family of Salts: And if Salts, then Alkalin, according to the Rules of your own Hypotheſis. But then (you reply) the Tabid Blood would have yielded much more Alkaly, had not the great quantity of luxuriant Alkaly bin thrown upon the Lungs. Methinks this looks a little ſtrange: For if you remember, the Conſumptive Perſon did ſweat prodigiouſly. Now you make Sweat to be nothing but an excrementitious Alkaly. If this Alkaly then was carried off in ſuch quantities, it could not well abound ſo much in the Lungs.*

Remark. This Objection or Reply to my Anſwer is a tolerably good one, and not without ſome ſeeming weight; yet is what I can eaſily clear my ſelf from. For,

Firſt,

Firſt, I have before taken notice of the ſmall diſproportion between the two peoples Blood, and have aſſign'd one very good reaſon for it; but according to your wonted Candor, you have furniſh'd me with a ſecond, and that is the profuſeneſs of the Sweats. Now if after theſe two great diſcharges of excrementitious Alkaly by ſweating and ſpitting, the Blood at laſt abounds with any quantity of Alkaly more than that of a ſound perſon, it is, I think, very reaſonable to ſuppoſe, that the Blood's being at firſt overcharg'd with Alkaly was the cauſe of the Diſtemper; and in many Conſumptive Caſes it is uſual for the Patient to ſpit perfect Chalk, and that in great quantities. Now if the Blood were overcharged with Acids in Conſumptions, the whole Maſs paſſing ſo frequently thro the Lungs, could not fail of being ſweetned by this Chalky Alkaly. But on the contrary, I think it very plain, that the Tone of the Lungs being ſpoil'd, and the Blood abounding with Alkaly, a part of this ſuperabundant Alkaly is thrown upon them, and cauſes all the havock that is made by this Tyrannical Diſtemper: and this being a Diſtemper of which moſt of my Predeceſſors have died, and I my ſelf am apprehenſive, has made me not a little inquiſitive into its Nature and Cauſe.

Secondly, That you might load the Blood of the healthy perſon with more Alkaly than I take notice of, you pretend from my Hypo-

theſis, tho without reaſon, to aſſign the cauſe of the Lucidneſs of the Atoms of the *Caput mortuum*, from its abounding with Alkalious Salts. Now I can aſſure you, that the whole quantity of *Caput mortuum* which that Blood produced, would ſcarce afford one grain of Salt of any kind. But ſuppoſing it to contain only the fourth part of a grain of *Phoſphorus*, this would diffuſe it ſelf thro the whole, and make it lucid. The *Phoſphorus* is a true Animal Fire, and may be extracted from all Animal Subſtances; and if it did not exiſt in them, how could it be extracted from them? And that the *Phoſphorus* is an Acidoſulphureous Subſtance, is to be demonſtrated without difficulty. And I have plainly told you, that the *Pabulum* of Animal Fires is a ſulphureous Acid.

Your ſecond and third Replies I ſhall not meddle with, becauſe you either grant me what I have ſaid, or elſe procede upon mere ſuppoſitions, of which I can take no notice.

But here you fall upon me again without that order I could wiſh, firſt with *Anſwer*, and then *Firſt* and *Secondly* again, and ſo on. Of this I ſhall take no notice, but go on from your firſt Reply to the Second, Third and Fourth, *&c.* in their order, and mark the pages in the Margin.

Reply.

Reply. You ſay, *That in page the 67th of my Anſwer, I know not what to make of your warm Particles. And by way of Reply you ſay, you mean Alkalious Particles, ſuch as you believe the Blood abounds with in ſome Fevers, and in which you grant Acids are of uſe. But yet* (ſay you) *I cannot agree with your notion of Fevers.* Pag. 6, 7, 8.

A Fever (ſay you pag. 68.) *procedes from a Conſtipation of ſome of the Emunctories, ſo that the excrementitious Alkaly, which ſhould be carried off by them, is detained in the Blood, which by breaking its Globules,* &c. *This Doctrin dos not ſeem at all to correſpond with your Practice. For Spirit of* Vitriol, *and other Acids which are very ſtiptic, the uſe of which you applaud in Fevers, ſhould methinks conſtipate the Pores more cloſely; and then they being of a very fixing nature, ſhould fetter or retain theſe excrementitious Alkalies. Again, if Fevers are occaſion'd only by a detention of theſe Alkalies, it muſt follow, that whenever they have free vent, the Fever muſt abate. But the contrary has bin ſomtimes experienced, where the Patient has ſweated very liberally, and yet died at laſt. If this will not ſerve the turn, I hope to make it appear anon, that Alkalies are not capable of breaking the Globules, and making ſuch a buſtle in the Blood. But I cannot but ſpeak one word or two in their defence before I go any further. I am very apt to think, that in ſome Fevers, eſpecially Peſtilential and Malignant, the Spirits*

are primarily affected, according to the Hypotheſis of the Ingenious Dr. Morton, *witneſs thoſe Symptoms which attend the* Nervoſum Genus *immediatly upon the firſt ſeizure. But you muſt not admit of this notion, from the ſoil which you muſt lodg in the Blood, and thence be communicated to the Spirits. Well, let it be ſo, I will not diſpute it: the difficulty on your ſide will be great ſtill. For tho I ſhall readily grant the Globules to be broken in the aforeſaid Fevers; yet 'twill be a hard matter to convict Alkalies of thoſe tragical diſorders. For firſt, experience ſhews that nothing is more proper in thoſe Caſes* Malignant (*I ſhall adventure to uſe the term, notwithſtanding it has bin ſo ſcouted of late*) *than* Pul. e Chelis, Rad. Serpentar. *nay,* Sp. C. C. *it ſelf, given in a proper Vehicle. But ſecondly, nothing dos ſo readily diſſolve the maſs of Blood, or ſeparat its Principles as Acids, which I ſhall prove by and by, when I come to ſpeak ſomthing of Dropſies. But this long diſcourſe of the heat of the Blood, dos naturally lead me to conſider ſomwhat of its Flame.*

Remark. I ſtill affirm that Fevers in general procede from a conſtipation of the Emunctories. Now I mean by *Emunctories*, thoſe parts which are only deſigned and provided by Nature for the ſeparation of the Excrements from the Blood; and whenever they are ſo diſordered as not to be able to perform that office, there muſt either a Fever, or ſome other great diſorder follow. And that this Doctrin quadrats

drats with my Practice, is very plain. For whenever theſe Emunctories are over-relax'd, they cannot ſqueeze out the excrementitious Particles in ſufficient quantities, and ſo they return back again into the Blood, and cauſe Fevers, or ſome other diſorder; and of conſequence Spirit of *Vitriol*, or ſome ſuch kind of *Stiptic* is the only proper remedy to take off this diſorder. But to knock this matter on the head, you ſay that in many Fevers the Patient ſweats ſo much, that it has coſt him his life. This I will readily grant you, but the Sweats you mean are certainly ſuch as we call *colliquative* ones; in which caſes the Emunctories are ſo overmuch relax'd, that they cannot bear a congeſtion at all, and ſo there is no ſuch thing as a ſecretion, but the Juices good and bad are all let out together; and unleſs they can be prevented by proper Stiptics, which will put Nature into her right courſe, the whole Fabric muſt ſoon be deſtroy'd. And it is alſo to be obſerved, that in ſuch Fevers the heat dos ſcarce excede that of the natural temper, the Pulſe being alſo exceding low. In the latter part of this Reply you altogether go upon ſuppoſitions, without the leaſt kind of demonſtration, and ſo it is ſcarce worth taking notice: but however to manifeſt my reſpect, I ſhall go on with it. As for what you mean by the Spirits being primarily affected in Peſtilential and Malignant Fevers (all deference had to the Worthy Dr. *Morton*) it is *Heathen*

Greek to me: For by my own experience (to uſe your terms) in ſuch caſes I have found the Blood ſo full of ſoil, that from thence I ſtick not to account for all the depreſſion of Spirits, and other nervous Symptoms that attend thoſe Fevers. And for a *Fever of the Spirits* purely, a very late Author has ſufficiently exploded that matter. And in my own Practice, within the ſpace of a twelve month, I have bin concern'd with three Perſons (and thanks to God I have ſeen no more) that have had the true Peſtilence or Plague; the Blood of all which I have ſeen, and indeed it has rather deſerved the name of *Soil* than *Blood*, they being ſuch maſſes of Putrelaginous Subſtance, as no man could without horror behold; and (by Divine aſſiſtance) two of theſe perſons I recover'd by the means of Acids, and believe I might have done the ſame by the third, had I bin call'd in time. As for what you ſpeak of your Experience as to the efficacy of *Pulvis è Chelis*, and *Sp. C. C.* 'tis a mere trifle; for if ever any thing was done after the exhibition of them, Nature her ſelf deſerv'd the whole honor, nothing in the leaſt being to be attributed to the Medicins, as may demonſtrably be made appear, and to pleaſe you I ſhall indeavor to do. But by the way I beg of you not to rank the *Rad. Serpentariæ* with the *Pul. è Chelis* and *Sp. C. C.* for the *Rad. Serp.* belongs to me, it being a moſt noble ſulphureous Acid invelop'd; and that it is ſo, I will be obliged

to

to maintain. But to return. I do boldly aſſert, that in no Fevers I ever yet met with, either *benign* or *malign*, could I obſerve the Patient to be in the leaſt ſenſible of any Acidity in the Stomach or Mouth, but generally thoſe parts have bin clog'd with a Matter that looks ſo like *Alkaly*, that if it be not the very ſame, I am ſure 'tis no kin to the *Crab-Tree*. Now ſuppoſe it to be Alkaly, as 'tis plain it is, what can the *Pul. è Chelis*, which is a fixt Alkaly, or the *Sp. C. C.* which is a volatil one, do to remove it? The *Pul. è Chelis*, or any Medicins of that Tribe, I mean of the *Teſtacea*, for want of an Acid to diſſolve them, muſt lie upon the Stomach, and by clogging that, cannot fail of doing much miſchief to the whole Body. As for *Sp. C. C.* or any Medicins of that kind, I ſee no reaſon for the exhibition of them, becauſe it is clearly manifeſt that the Blood of feveriſh People is alwayes over-clog'd with particles of the ſame nature, *viz.* volatil Alkalious Salts. But inſtead of the *Teſtacea* and volatil Salts, if you uſe any of the following ſort of Medicins, I am apt to believe your Practice in Malignant Fevers will be more ſucceſsful than it has hitherto bin, *viz.* ſuch as *Aq. Theriacalis* in large quantities, *Mixtura Simplex*, *Elix. Vitrioli N°.* an Infuſion of *Virginian Snake-Root*, &c. in Vinegar, *&c.* but here I have not room to expatiat. By the uſe of theſe Medicins you may raiſe the Pulſe, and fortify the deprav'd and paul'd Stomach,

Stomach, promote due and regular Secretions, and change the malignant colliquative ſymptomatic Sweats into benign and critical ones. But this is not a place for me to inlarge upon the method of the Cure of Fevers, that being reſerv'd for a particular Tract by it ſelf; which with other things I have promiſed, ſhall appear abroad as ſoon as poſſible.

As for what you here ſay in relation to Acids diſſolving the Blood, I ſhall now take no notice of it, becauſe you handle that matter more largely in another place.

Reply. *And here the Life of Man you take to be a Fire or Flame; and all we eat and drink, together with the Air we draw in, to be Fuel for this Flame. The chief Arguments you bring to confirm this Doctrin, are taken from the Excrements of this Flame and its Fuel. The Excrements are Alkalies, which are near of kin to Soot, the Relicts of other Flames: And for its Fuel, 'tis Acid and Sulphur, the common Fuel of all Flames. Here I muſt confeſs you talk very ingeniouſly, and highly improve the Notions of that great Philoſopher. But let us examin this Hypotheſis a little. As for* Alkalies, *I confeſs they are of the ſame nature with* Aſhes *and* Soot: *Yet it dos not follow, that becauſe Alkalies are found in the Blood, there muſt be a Flame too. We extract Alkaly out of ſeveral Herbs: 'Tis true, the Herbs muſt be calcin'd firſt. But certainly the Salt was pre-exiſtent in the Herb before the Calcination, or elſe the Fire pro-*

produc'd it de novo, *which you will by no means admit. The Inference then is plain. I will not adventure to ſay any thing of* Crabs-Claws, Oiſter-Shells, *&c. leſt you ſhould make them the Recrements of a vital Flame. Come we next to the* Pabulum, *and that is Acid and Sulphur. That Bodies in which Sulphur is predominant, are inflammable, no body queſtions: But that ſuch in which Acid is the chief Ingredient ſhould burn, looks like a Paradox. To inſtance in a few:* Acet. Spirit of Vitriol. Suc. Limon. *&c. are ſo far from promoting Flame, that they immediatly quench it: And indeed I know but one Acid in Nature which is inflammable, and that is* Niter. *But then this Vital Flame is not of a nature with Culinary Flames.* Anſwer. *Since the* Pabulum *is the ſame, methinks the Flame ſhould be ſo too. Again, tho you ſpeak ſo much of this Vital Flame, yet you do not, as I remember, much care to fix the place of its exiſtence. I ſuppoſe it muſt be in the Blood, if any where. Now 'tis very hard to ſuppoſe a Flame in that Body, of which no part is inflammable. If you open a Vein, and the Blood ſpouts out reeking hot on the Fire, it will immediatly quench it. So that methinks, theſe Notions ſeem to be a little too finely ſpun. Acid and Sulphur do ſupport human Life; Men live upon Coals, Brimſtone,* &c. *in which there is ſtore of Acid and Sulphur. That we cannot ſubſiſt without Air is evident: For tho there is no Fire in the Blood, there is Motion undoubtedly. Now the Nitro-aereal Particles*

ticles give a freſh Fermentation (or Motion) to it, and free it from Coagulation. If you are not ſatisfied with this, conſult the Ingenious Dr. Mayo. *But then the Blood has heat and warmth; and theſe are the Properties of Fire.* Anſw. *May they not be excited by its Motion? No (you* reply) *we are much warmer in Bed when we uſe no Exerciſe, than when we are up and in Motion.* Anſw. *The Body indeed is in no motion there; but the Blood is in greater than when we are out of our Beds; and 'tis impoſſible it ſhould be otherwiſe. For do not the Bed-clothes protect us from the Coldneſs of the ambient Air? And are not a great many of the Volatil Alkalies detain'd by them, which reflecting upon the Body, warm it, and accelerat the Motion of the Blood? But after all, if we move violently when out of our Beds, we are much warmer than when in them. You are pleas'd to object, 'tis impoſſible mere Motion ſhould cauſe any Heat in fluid Bodies. How ſo? Let a Man put* Spirit. Corn. Cerv. *and* Spirit. Vitrioli *together, and obſerve their Effects, they will ſoon grow warm. 'Tis evident, they do not ſtand ſtill, but move very briskly before they are warm. And what is the Heat of theſe Bodies occaſioned by, but their Fermentation or inteſtin Motion? Surely it cannot be by Accenſion.*

Remark. That the Life of Man is a Flame, I think I have ſufficiently demonſtrated before, and ſhall here indeavor to make it ſomwhat more plain. The *Phoſphorus* is to be obtained from

from all Animal Subſtances; and that it is a Fire is paſt diſpute, it performing all thoſe things that common Fire will, *viz.* inkindle inflammable Bodies, give heat and warmth to things near it, afford Light in the Dark, *&c.* and yet in many things differs from common Fire. Now if this Fire were not actually exiſtent in Animal Bodies, how is it poſſible it ſhould be extracted from them? Common Brimſtone, Tallow, Pitch, *&c.* abound with Sulphur, and of conſequence are inflammable; yet from none of theſe, by any Artifice now known, is there the leaſt quantity of *Phoſphorus*, or any thing like it to be obtain'd. The *Phoſphorus* will not burn, without a free acceſs of Air, any more than common Fire. But herein is a great difference between the *Phoſphorus* and common Fire: Let any inflammable Body be never ſo well inkindled, and afterwards the Flame or inkindled part immerg'd in Water, it will inſtantaneouſly be extinguiſh'd, ſo as not to recover it ſelf, tho expos'd to never ſo free an Air, without being again applied to ſome inkindled Body. Let a piece of *Phoſphorus*, in a dark night, be plac'd upon a ſheet of Paper, it will immediatly of its own accord, afford a Light, heat your Fingers, and burn the Paper: this piece of *Phoſphorus* put into water, will, in all appearance, be totally extinguiſh'd; yet tho it has lain in the Water for a whole year, upon being taken out, it will of it ſelf burn, *&c.*

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in the ſame manner as when put into the water. Upon ſtroking ſome Cats in the dark, multitudes of ſmall flaſhes of Fire will follow ones hand, as I have frequently experienced: Now this gentle ſtroking can never cauſe ſo violent a Motion as you make Fire to be, and indeed is, unleſs it were actually exiſtent in the Animal before. Tho I confeſs Fire to be a Subſtance conſtantly in motion, and that this motion is a very brisk one, yet all brisk motion is not a Fire, which from the *Carteſian* Hypotheſis ſeems to be a neceſſary concluſion. But I can aſſure you, I know ſeveral Fluids, that the more briskly they are moved, the colder they are; as for inſtance, a River is always colder where there is a quick Current, than where the Water ſtands ſtill: The Air is always more or leſs cold, as the Motion of it is greater or leſs; and I can aſſure you I have bin almoſt ſtarv'd when forc'd to travel in high Winds in Winter, when the Air is moſt full of nitrous Particles, which you own to be inflammable: and behold here your *Nitrous Particles* in violent motion, and yet a man almoſt ſtarved by them, nay ſeveral have actually bin ſo; ſo that you ſee they are not all kinds of violent motion, tho of Particles inclin'd to take Fire, that will cauſe a Flame. Thus 'tis clear I have ſufficient reaſon to maintain my aſſertion, that mere Motion, tho never ſo much excited, will not occaſion Heat in fluid Bodies, and that there is a difference in ſome

reſpects

reſpects between the *Vital Flame* and common *Culinary Fire*, tho in many things they agree. I ſhall here again enumerat ſome things wherein Animal Fire and Common Fire do agree and diſagree. *Animal Fire* will not burn without a due acceſs of Air, neither will *Common Fire*; Animal Fire cauſes Heat and Warmth, ſo dos Common Fire; Animal Fire cannot ſubſiſt without a conſtant ſupply of ſulphureous acid Particles, neither can Common Fire without a ſupply of the ſame, *&c.* Animal Fire (for ſo I call the *Phoſphorus*) being immerg'd in Water, and afterwards taken out again, will regain all its properties of Light, Heat, *&c.* without being applied to other inkindled Bodies: This Common Fire will not do; for if once extinguiſh'd by immerſion in Water, or otherwiſe, it cannot recover it ſelf. I ſtill aſſert, that ſuch Bodies as are the proper *Pabulum* for Fire, are compoſed of Acid and Sulphur; but thoſe that abound with moſt Sulphur, burn with the greateſt violence; thoſe that abound moſt with Acid, more ſlowly; and ſome Acid Subſtances that have little Sulphur in them, will ſcarce burn at all, eſpecially if much diluted with Phlegm, ſuch as *Vinegar*, *Juice of Lemons*, *Spirit of Vitriol*, &c. and therfore when the Heat of the Body is too intenſe, I give thoſe Acids that are leaſt impregnated with Sulphur, to abate the violence of the Flame; when the Heat is too remiſs, I give ſulphureous Acids to excite the

the Flame. You ſay you know but one Acid in Nature which is inflammable, and that is *Niter*: Now I aſſure you it is my opinion, nay I am very well able to demonſtrat, that moſt, if not all pure Acids in Nature have their origin from the Niter of the Air; but pure Niter alone will ſcarce burn at all, unleſs mix'd with ſome kind of Sulphur. As for fixing a particular place for the exiſtence of the Vital Flame, I thought there was no reaſon for it; but now I tell you, that I ſuppoſe it is diffuſed thro all the parts of the Body; and if by accident any part is deſtitute of it, a mortification inſues. But then again you ſay, it is hard to conceive a Flame in that Body, of which no part is inflammable. Pray what think you of the *oily fat Particles* contained, not only in the Blood, but all other parts? are not they inflammable? The reaſon why we are warmer in Bed, and after violent exerciſe, is not to be attributed to any unknown Doctrin of Fermentation, but becauſe we have a freer Perſpiration at theſe times; and conſequently the Flame muſt burn more freely. Your Compariſon between the Heat of the Blood and that occaſion'd by the mixture of Spirit of *Harts-horn* and Spirit of *Vitriol*, will not hold good; for in mixing thoſe two Liquors, or in any kind of Fermentation, there is a very ſenſible commotion and hurry in all the parts of the ſaid Liquors, whereas in the Blood of healthy Perſons there is no ſuch thing. I confeſs by the impulſe

impulſe of the Heart it is driven progreſſively from the center to the extremities, to ſupply the neceſſities of the Parts; but beſides this progreſſive Motion, I know no other it has, all the Secretions being perform'd by proper Strainers, not from any Fermentation. Nay it is very eaſy for a man to perceive there is no ſuch thing as a Fermentation in the Blood by the following plain Experiment, *viz.* Let a few ounces of Blood run out of the Veins or Arteries of a Man, or other Animal, into a very clear Glaſs Veſſel, which you may put into a Sand Furnace, wherein the heat may be ſuch as to keep the Blood in the ſame degree of warmth, as it came out of the Veſſels; and if there be any ſuch commotion to be ſeen with the beſt Light and beſt Eyes, as may be perceiv'd in thoſe Liquors which are in a ſtate of Fermentation, upon information I ſhall gladly own my miſtake. There is, I confeſs, a Froth to be ſeen upon the ſurface of ſome Blood after it is let out into the Porringer, which looks like the ſurface of Liquors that are fermenting: But this Froth is ſo far from being the effect of Fermentation, that it procedes from nothing elſe but the different ſtream in which the Blood runs. For in the ſame Perſon, let one Parcel run out in a rapid ſtream, and it will occaſion froth or bubbles; let another Parcel run out gently, and it will produce no ſuch thing. Will not ſimple Water or any other Liquor do the ſame? But Blood being a

Liquor of a greater conſiſtence, the Bubbles when raiſed will not ſo ſoon diſappear, as in Water, or other Liquors that are more fluid; from which I hope it is plain, that the conſtant natural heat of the Blood dos not procede from Fermentation. And if the progreſſive Motion from the Heart to the Extremities gives it its heat, by the ſame reaſon, I think, the Water that runs from our Cocks ſhould be warm alſo; whereas I dare be bold to ſay, that inſtead of gaining any heat by its rapid propulſion thro the Pipes, it is much colder than the Water in the River at the place whence it was received into the Engin. I had almoſt forgot to take notice of what you ſaid concerning the *Production of Alkalies*; but it being a very material thing, I ſhall here expatiat a little upon what I have before ſaid as to that Subject, and take all poſſible care to avoid repetitions. I have already own'd that Alkalies do actually exiſt in ſeveral Bodies as the principle of their death and deſtruction, but I never could yet hear of any one that has ſeen ſuch a thing as either a volatil or fixt *Alkalizat Salt*, that was any other ways obtained out of Vegetable or Mineral Bodies, than from the Bodies after they were burnt, *viz.* out of the Aſhes or Soot of them, which are their Excrements, or rather the Excrements of Fire; or elſe after the Body had undergon a Putrefaction, which is analogous to Fire. Now this being ſo in relation to Vegetables and

Mine-

Minerals, I think it may not be amiſs to infer, that the Alkaly to be found in Animal Subſtances is the Excrement of their Fire; and that which mightily confirms me in this Notion is, that all the Excrements of Animals are Alkalious, *viz.* a Matter thrown away either as uſeleſs, or incommodious; and of conſequence all the Alkaly to be met with in the Blood or elſewhere, is an Excrement in a way of being carried off. I ſhall not ſay more upon this Head now, becauſe I may have occaſion to inlarge upon it, and upon the *Heat of the Blood*, in my Tract of *Fevers*. But what I have already ſaid is, I think, ſufficient to ſatisfy any one who is not a mere Sceptic. And for manifeſt Acids, they are to be met with every where almoſt, both in the Mineral and Vegetable Kingdoms, even in thoſe Bodies that never underwent a Putrefaction, but are in the greateſt ſtate of Perfection; and for *Vinegar* and the like, it is ſo far from being the effects of Putrefaction, that it is the laſt degree of Perfection to which Nature alone is capable of bringing thoſe Liquors. It is alſo to be obſerved, that thoſe Fruits of which Wine is made, were firſt Acid, before they came to a ſtate fit to make Wine; and that Putrefaction is the Cauſe of the Acidneſs of unripe Fruits, I believe none will aſſert. This Subject is alſo too long to handle fully in this place, and therfore I ſhall alſo omit the further proſecution of it for a Practical Diſcourſe.

Reply. *If* Alkalies *are the Original of Diſtempers, whence is it, that in* Dropſies, Catarrhs, *ſome* Gouts, *and other Diſeaſes, we find the Texture of the Blood ſo thin? 'Tis obſervable, that thoſe Particles you term* Alkalies, *the more the Blood is ſaturated with them, of the more thick Conſiſtence it is, as we ſee in* Pleuriſies, Rheumatiſms *and other Inflammatory Caſes (in which Diſtempers, if in any, the Alkalies abound) Is not then its Tenuity rather to be imputed to Acids? Do not Acids immediatly put the Blood in a Fuſion, and render it thin? Your Anſwer to this is, that the Thinneſs of the Blood is not the only cauſe of theſe Diſtempers, but a deſtruction of the Tone of the Parts. Here methinks you do not argue ſo fairly. For you mention little or nothing of the deſtruction of the Tone of the Parts in your Etymologies of Diſtempers till now. And why may not I as well ſay, in Inflammatory Caſes the Blood is not affected with any Alkalin Particles? Theſe Inflammations only ariſe from a deſtruction of the Tone of the Parts; eſpecially, if you conſider what you aſſerted in your Notion of* Fevers: *For there the Emunctories are very much out of order. But you object, Since* Acids *will reduce the Blood to its due conſiſtence, it is not reaſonable to ſuppoſe they ſhould be the cauſe of its Fuſion.* Anſw. *Whether* Acids *will reſtore the Conſiſtence of the Blood, I ſhall examin by and by: I fear they will not. But this I am certain of, they will put it in a Fuſion. 'Tis well known that your celebrated*

Oil

Oil of Vitriol *taken alone, or tho in a Vehicle, if in too great a quantity, kills. Now how dos it kill? Dos it not by diſſolving the Maſs of Blood, by ſeparating the Grumous Parts from the Serous, and breaking its Texture after the ſame manner as it dos that of Milk? Sure I am, that Blood coagulated by the aforeſaid Oil, dos much more reſemble* Whey *and* Curds *than Jelly of* Harts-horn. *Now then, what is all this but an extraordinary Fuſion? And if a large Doſe will make ſuch mad work, and put the Blood into ſo great a fuſion; certainly a leſs Doſe muſt cauſe ſomewhat of a Fuſion. And 'tis rational to believe that Oil of* Vitriol *is proper only in thoſe Diſtempers where the Blood is too thick; very pernicious in ſuch as have it too thin. And here I am glad you ſo opportunely give us your Sentiments of* Dropſies. *A Dropſy, ſay you, or the Thinneſs of Blood in that Diſeaſe procedes not from Acids, but overmuch* Drinking. Anſw. *That large Draughts (there being little Evacuation by Urin) render the Blood thinner, is obvious. But the Patient had no ſuch deſire for Drink, till the Diſtemper was actually upon him. So that the Queſtion is, what firſt brought on the Diſtemper. Was it not a weakneſs of Blood, or want of due Conſiſtence? I do not ſee how you can well deny it. But then you reply, Let it be ſo, 'tis impoſſible Acids ſhould occaſion this ill Habit of Blood. For, Hydropical People are thirſty, and 'tis ridiculous to imagin that Acids ſhould excite Thirſt, when they are the only things in the World that will quench it.*

Anſw. *This I confeſs, at firſt ſight, looks like an invincible Argument: But I muſt crave leave to weigh it a little. That Acids drunk or held in the Mouth, uſually quench Thirſt, is an undeniable Truth: Tho 'twill hardly hold good in all Caſes. For, let a man drink Brine, which is very much impregnated with Acids, or eat high-ſeaſon'd Meats; I believe, tho he were a* Stoic, *he would immediatly grow thirſty. But common Salt is not an Acid of a right nature. Well, admit this. The moſt famous Acids that I know for ſuppreſſing Thirſt, are* Ol. Vitriol. Spirit. Vitriol. *&c. Now I hope to make it appear, that theſe, or Acids of the ſame nature, abounding in the Blood, may provoke Thirſt. I proved juſt now, that Oil of* Vitriol *had an ugly Faculty of coagulating the Blood, or ſeparating its Serum. That there is a ſeparation of the Serum in Dropſies, is evident: If any man ſhould deny it, let him look upon the* Abdomen *and extreme parts, and his Eys are enough to convince him. Well then, the Serum being thus ſeparated (pray obſerve) and the Maſs of Blood not enough diluted, the oral Glands muſt neceſſarily be defrauded of their due Moiſture, and conſequently Thirſt excited. But ſtill you harp upon the ſame ſtring: Thoſe Medicins which reſtore the* Conſiſtence *of the Blood, cannot well be ſuppoſed to impair it. Now Acids reſtore it; and* Steel *in particular.*

Anſw. *That Steel is of excellent uſe, and a very great Reſtorative, is not to be denied. But under favor, tho you diſcourſe very ingeniouſly of*

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the Nature of Steel; yet all you have ſaid will not amount to a proof of its being an Acid: *I am ſtill inclined to think it is an Alkaly. For tho it dos not diſcover it ſelf to be ſuch by its Color, yet it plainly dos by its Effects,* viz. *its Fermentation with Acids. If, notwithſtanding this* Phænomenon, *you will needs have it to be an Acid, why then one Acid will ferment with another; and ſo one Alkaly with another: wherfore, tho we ſhould ſubſcribe to the Hypotheſis, That Alkalies are the Original of all Diſtempers, yet 'tis hard to exclude the uſe of them in general in Diſtempers. For ſome Alkalies or other might be found out that ſhould diſpute it with theſe offending Alkalies. You are pleaſed to quote* Beeker *for a confirmation of the Acidity of Steel. The chief Sentence of the Citation ſeems to be this.* Hoc tantum hic loci allegabo, omne Acidum ſubſtantiæ martialis eſſe, in quocunq; oleo, pinguedine, fuligine, limo, ſilice & arenâ, immo etiam ipſâ flammâ reperibile, & ad oculum demonſtrari poſſe; quæcunq; ergo naturæ Acidæ & martialis ſunt, illa poteſtatem habent Alkali tanquam ſubſtantiam metallorum mercurialem alterandi & tranſmutandi. *If I apprehend the Senſe of the Author, this dos not make ſo much for you. But ſuppoſe it did,* Beeker *was never reckon'd infallible. And tho* Chalybs *were an Acid, it dos not follow, becauſe one Acid will renew the State of the Blood, that others will do ſo too. But ſince we have ſo happily fallen on this Subject,* viz. *the ſtrengthning*

the Mass of Blood, let us see what other Medicins besides Chalybs *are subservient to this end. And here I suppose your bitter Herbs may not be* infimi subsellii. *'Tis needless to prove it; for hardly any Physician but what has experienced it. I do not believe you will dare to say, there is any thing of an Acid in these, since you know very well that Alkaly may be extracted from most, if not all of them. So that poor Alkaly is effectual in some Cases you see. But then, you say,* Oak-Bark, Bistort, Tormentil, Comfry-roots, *and others of that Tribe will reduce the Blood to Consistence.* Answ. *That they are astringent I grant; whether they will reduce the Blood, or invigorat its depauperated Principles, I much question. 'Tis very rare to see them prescribed in* Dropsies, Cachexies, *and the like Distempers where the Blood is poor and low. They are proper indeed in* Fluxes *by virtue of their astringent Faculty; but then they ow this Astringenty to Acids: Whether they do or no, it matters not much. But why may not this Quality be derived as well from the Terrestrious as the Salt Particles of these Vegetables; since* Bol. Arm. Terra Lemnia, *and other plain Earths are very stiptic? I do not say these Earths are so simple as to have no manner of Salt in them, but surely they have very little Acid.*

Remark. I am very glad you own Alkalies to abound in *Pleurisies* and *Rheumatisms*, and other inflammatory Distempers. Upon my word, if this be granted, I have gain'd a great

great point; for to have put the World into a true way of curing but one ſingle Diſtemper, is what deſerves no ſmall Honor. And for the buſineſs of *Dropſies*, I aſſure you I have no reaſon to recede from what I have ſaid upon that Subject; but if you or any one elſe would favor the World with as certain a Method of curing a confirmed *Aſcites* or Belly-Dropſy, as I have done of curing *Rheumatiſms*, *Gouts*, &c. I my ſelf would ſpare no pains to ſpread that Man's Fame, let him be who he would: But this I am afraid I ſhall never live to ſee perform'd, becauſe the Tone of the Parts principally affected, is ſo deſtroyed and ſpoiled, that it would be next to a Miracle to recover them. [In the preceding Tract I have given a ſhort account of ſome late improvements I have made, relating to the Cure of this *Herculean* Diſtemper.] And tho you are pleaſed to charge me with arguing unfairly, for attributing the Cauſe of Dropſies in a great meaſure, to a deſtruction of the Tone of the Parts, becauſe I had not before in my Etymologies of Diſtempers, taken ſufficient notice of that matter; yet ſuppoſe I had bin deficient in that point, I hope it is no crime to bring it in late, rather than not at all. But I aſſure you, I have frequently taken notice of that matter, and lay as great a ſtreſs upon it as on any one thing whatſoever; and do ſtill inſiſt upon it, that the great Thinneſs of the Blood in Dropſies dos very much procede from the great quantities

quantities of Liquids taken into the Body, and the ſmall quantity diſcharg'd, by reaſon the Parts of it have loſt their Tone, and therfore the Secretions are not rightly to be perform'd; a man that drinks two Quarts in twenty four hours, not being able to piſs, perhaps, above four Ounces, Perſpiration alſo being greatly hindred upon the ſame account. Now for want of a due ſecretion by the excretory Veſſels, the Blood is clog'd with too great a quantity of Serum; which being admitted into the Lymphatic Veſſels, and impregnated with Alkalin Particles, cannot freely paſs along theſe Veſſels becauſe of its Gelatinous quality, by which means they are diſtended to a vaſt Magnitude, and ſomtimes broke; and from the broken Lympheducts it is, that ſo great a quantity of Liquor is thrown into the Cavity of the Abdomen, which diſtends it to ſuch a bigneſs. But for all this great quantity thrown into the Abdomen, the Blood is ſtill loaded with three parts in four more of Serum than it ought to be, and therfore the Oral Glands cannot want ſufficient Moiſture. But here lies the thing, the Matter that in a ſtate of health is ſeparated by the Oral Glands, is impregnated with a Noble Volatil Acid, as dos manifeſtly appear. But in this caſe the ſaid Acid is almoſt, if not totally deſtroyed, and the ſaid Lympha impregnated with Alkaly, which is the occaſion of the great Thirſt that attends Hydropical People. But ſince I have

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attributed an Acidity to the *Lympha* in a ſtate of Health, and yet aſſert there is no ſuch thing as a pure Acid to be obtain'd from the Blood, either in a morbid State or in a State of Health, that being invelop'd in the Oily Particles, I ſhall preſume, to avoid further Objections, to make a little excurſion concerning the general uſe of the *Glands*.

I will at preſent divide the Glands into two kinds or ſorts, the firſt of which ſeparat the Excrementitious Particles from the Blood, and throw them quite off by ſome proper Emunctories, ſuch are the *Excretory Glands* of the Skin, the *Glandulæ Renales*, the Glands of the Liver, *&c.* all which do ſeparat an Alkaly from the Blood, to be thrown off as Excrement; and if by any accident theſe Glands are made uncapable of performing their office, ſo that the Blood cannot be rid of its Excrements, a Diſtemper of ſome kind or other muſt neceſſarily follow. The ſecond kind do receive a Noble Subſtance into them to be again mix'd with the Blood, or for other uſes, of univerſal advantage to the whole Body. The Glands of the Mouth do ſeparat the thin Juice impregnated with a Volatil Acid, which Juice was never deſign'd by Nature to be thrown away, as ſome *Tobacco-takers* laviſhly do, but to impregnat our Food as 'tis chew'd in the Mouth, and afterwards to diſſolve it in the Stomach, and turn it into a Subſtance fit for the nutrition of our Bodies. The other

Recep-

Receptory Glands, for ſo I preſume to call all thoſe which do not ſeparat Excrements from the Blood, do, by the extraordinary providence of Nature, receive into them that fine Subſtance which is ſuperfluous in the nouriſhing of the Parts; and by means of the Lympheducts, in a gentle and eaſy courſe, do convey it to the *Ductus Thoracicus*, where it is mix'd with the Chyle, juſt before it is admitted into the Blood; and that this *Lympha* is a mild Acid has already bin own'd by many. So that here you ſee, if there be any *Acid* in the Body ſuperfluous, Nature is very provident in the preſervation of it, and equally careful in throwing off the ſuperfluous *Alkaly* by a multitude of Emunctories, or Excretory Glands.

From what has bin ſaid concerning the uſe of the Glands, a great many *Phænomena* concerning Dropſies, and other Diſtempers, may with eaſe be ſolved. In Dropſies, for inſtance, as before obſerved, the Excretory Glands not being able to perform their Office, the excrementitious Alkaly, together with its watry Vehicle, is detained in the Body; by which means, tho the Body may increaſe in bulk, yet none of the Parts receive their due Nouriſhment; and the Tone of the whole being relax'd and ſpoil'd, the Receptory Glands forget their duty alſo, and inſtead of receiving into them a pure acidulated Serum only, are forced to let paſs ſome Alkalized Excrementitious Serum, which makes the whole a

kind

kind of Gelatinous Conſiſtence; which not being able to paſs along the Tracts of the Lympheducts, dos ſo diſtend them, as to cauſe ſwellings in the Belly, and œdematous Tumors in the Legs, *&c.* And Belly-Dropſies having for the moſt part a Jaundice as their forerunner, nay frequently going along with them thro the whole courſe of the Diſtemper, is no ſmall Argument to prove the Truth of what I have before obſerv'd, *viz.* that ſome of the Excretory Glands have bin defective in their duty, by which means all the Body is impregnated with this yellow Die, and the whole Oeconomy put out of order: And that the Yellowneſs of the Body procedes from a redundancy of Bile, no body denies; and that Bile is an Alkaly you don't diſown. But now come we to the curative part of this horrid Diſtemper; which tho rarely to be perform'd in a confirm'd State, yet in the beginning, nay after it has made ſome progreſs, is frequently to be done, and that as effectually by *Chalibeats* and *Bitters* as by any ſort of Medicins. But here for want of making Experiments (by which means only we are capable of arriving to any ſort of Certainty in the knowlege of things) you ſay that *Steel* and the *bitter Herbs* are Alkalies: and the reaſons you give for it are, becauſe Steel being mix'd with Acids, will cauſe an Effervescence; and the bitter Herbs, after burning, do afford a fixt Alkaly. Solid Reaſons indeed! For all

Sul-

Sulphurs being mixt with Acids will cauſe an Effervescence, nay ſome of them take fire; and that all Metals are full of Sulphur is paſt diſpute; and from the Aſhes of all Plants, even *Sorrel* it ſelf, may be extracted a fixt Alkaly; therfore by this way of arguing, *Sulphur* muſt be an Alkaly, and ſo muſt *Sorrel* alſo. But the manner of the Production of volatil and fixt Alkalies having bin ſpoken to before, I ſhall ſay no more to that Matter, but touch a little upon what I take to be the General Principles of mixt Bodies, not that all theſe Principles are to be ſeparated from all Bodies, ſome containing all, ſome two, three or four of them; and according to the different mixture of them, different Subſtances are produced. *Acid* and *Sulphur* I take to be the vital active Principles in Bodies, *Alkaly* the Principle of Death and Corruption, *Water* and *Earth* the two paſſive Principles. From theſe five Principles I think I can more eaſily account for the various *Phenomena* in Natural Bodies, than from the old five of *Salt*, *Sulphur* and *Mercury*, *Water* and *Earth*, or from any other Principles yet broach'd in the World. I have only mentioned this matter, to let you know the Principles I go upon, but ſhall leave the further proſecution of it to another opportunity. Now to return to the buſineſs of *Steel* and *Bitters*; as for *Steel*, I have ſaid ſo much already concerning that in ſeveral places, that I ſhall not here trouble my ſelf nor you any more about

bout it. But if we can cure Diſtempers with it, it is no matter tho one takes it for an Alkaly, and another for an Acid; nay I can aſſure you, if you will but black your Fingers a little with Charcoal, you will find it to be a ſulphureous Acid. As for *Bitters*, I will be bound to lay a good Wager with you, that if you put a pound of *Centaury* or *Wormwood* dried into a Retort, and diſtil it with an eaſy Fire till all be come off that will, and afterwards calcine the *Caput Mortuum*, and extract the fixt Alkaly from the Aſhes, if you don't find a treble or much greater proportion of Acid to that of Alkaly produced from theſe moſt bitter Plants, I will be a loſer. But further, if Bitterneſs did procede from a predominancy of Alkaly in any Body, why then a man would ſuppoſe the more this Body were impregnated with Alkaly, the bitterer it would be: but upon my word I have frequently experienced the contrary. For when I was a Champion for *Alkalious* Medicins (as I am not aſhamed to own I once was) I have extracted a Tincture from *Myrrh*, *Aloes* and *Saffron*, with well rectified Spirit of *Sal Armoniac*, hoping to do great Feats with it. Now after I had digeſted them together for ten or twelve days in a gentle Sand-Heat, inſtead of having the Tincture bitterer than the Myrrh and Aloes themſelves, I always found it almoſt, if not altogether without any bitterneſs at all; nay, after a longer digeſtion it has bin almoſt perfectly

fectly ſweet. However, I lay no great ſtreſs upon Taſts, the differences in them being one of the ſpecific differences the Great Creator has planted in things, of which we have as yet but very little knowlege; tho, I confeſs, I greatly lament our Ignorance in this matter. A few degrees of predominancy of any of the Principles, cauſe very great alterations in Bodies, both as to *Color*, *Smell*, and *Taſt*; and for ought I know, a knowlege of theſe minute Circumſtances is what we have no poſſibility of arriving to in this World. But one word more concerning *Bitters*, becauſe you will account them *Alkalies*, and lay ſo great a ſtreſs upon them. *Vitriol* of *Silver* is the moſt exalted Bitter I know, and a celebrated Medicin in the Cure of Dropſies, but yet is no Alkaly; and after you have conſidered it, I believe you won't term it ſo. What you ſay to *Acids* fuſing the Blood, is directly contrary to what our Predeceſſors have aſſerted, who attributed its coagulation to Acids, and to what you your ſelf ſay a little after. But what I attribute to *Acids* in general is this, that they keep the Blood in its due ſtate, *viz.* the Fibrous and Globulous Parts in their due Texture, and the *Serum* fluid, by which means the whole Maſs is capable of performing its proper Offices without being liable to Stagnations; and alſo by confirming and ſtrengthning the Tone of the Parts, they greatly contribute to the aforeſaid end, *viz.* preventing Stagnations,

tions, and promoting the Secretions. As for what you ſay concerning the giving of Oil of *Vitriol* alone, I readily aſſent to it, that it will make mad work; but I hope you cannot charge me with any ſuch mad Practice. When People are cold, they naturally run to the Fire for warmth, yet none but mad Perſons will put their hands into it; and tho Culinary Fire, if People are ſo imprudent as to throw themſelves into it, will conſume and deſtroy them, yet a prudent uſe of it is a very great comfort to Human Life: and were it not for Fire, the *Ruſſians* and other *Northern* People would have a very ſad time on't during their long Winters. So it is in relation to Oil of *Vitriol*, which tho given alone will cauſe Death and Deſtruction, yet being diluted in proper Vehicles, and given in very large quantities, will in many caſes produce as noble Effects as any one Medicin now known. It is the buſineſs of a Phyſician to conſider the Nature and Conſtitution of his Patients in all reſpects, and to proportion the Doſes of Medicins as their Stomachs and Natures will bear. I hope there was never any ſo wild, becauſe Oil of *Vitriol* is recommended in Fevers, as to give it alone without a Vehicle. But what you charge upon Oil of *Vitriol*, may be retorted upon moſt other Medicins of an active nature: Becauſe an ounce of *Calamelanos* given at once to a Man will ſcarce fail of killing him, I ſuppoſe that dos not deter you from giving a few grains of it to a

young Child. An ounce of *Rozin of Jallap* will kill a Plowman, and yet a few grains may with ſafety be given to a very tender Conſtitution. I could retort a great many things of this kind upon you, were it not altogether needleſs: for that Phyſician that gives a Medicin without firſt conſidering it in all its circumſtances, deſerves to be baniſhed the ſociety of Mankind; and he that knows moſt, is generally moſt cautious: and tho I am ſo clamor'd at by my Brethren, yet I can boldly ſay, the greateſt ſlips I ever made, have bin from my over-cautiouſneſs; and I will rather chuſe to commit three faults from that, than occaſion the loſs of one man's Life from raſhneſs and inconſideratneſs. What you have objected againſt Oil of *Vitriol* taken alone, has long ſince bin objected by other People, and the Objections fairly anſwered. I ſhall preſume to tranſcribe what I have met with in an *Apologetic Dialogue* between *Philerastus* and *Chemiſta*, upon the ſame Subject, *Theatrum Chymicum*, pag. 86, 87. Vol. I.

Ph. *Abſit tamen Vitriolum, Chalcithin, atq; aliaid genus leproſa, impura, atq; corrodentia mineralia in humanum corpus ingeri, & ad perpetuam tui nominis ipſiuſq; artis infamiam uſurpari.*

Ch. *Quid ita, hoſpes mi?*

Ph. *Nam cum oleum Vitrioli etiam à Geſnero toties laudatum, ſcutellam ſtanneam exedit; quis ſimile periculum in ſtomacho noſtro membraneo non meritò verebitur?*

Ch.

Ch. *Aſpera tu quidem tela elidis, ſed quæ facilè retundi queant à Philoſopho excitato. Nam ſi oleum Vitrioli propter ſtannum ex eo exeſſum humano corpore exulabit; quid vino ſublimato, Aceti Melliſque ſpiritu, quid tale, & Limonum Citrorumque ſucco fiet? Nam eorum unumquodq; ſtannum abſumere, vel ſemeſtris medicus agnoſcit.*

Ph. *At non tam parvo temporis curriculo atq; ſpiritus ille vitriolatus.*

Ch. *Imo ſanè minori, ſi cum noſtro illius exhibendi modo conferatur ratio; nollem enim te aliquem Chemiſtam tam ſtupido ingenio præditum exiſtimare, ut oleum Vitrioli nullis aliis mixtum liquoribus propinare auſus ſit, ſed potiùs ad aquæ roſaceæ vel alterius liquoris libram olei vitriolati guttas totidem adjicere, quæ ad aciditatem comparandam ſatis eſſe queant: cui liquori oleo Vitrioli accreſcenti, ſi tantum ſtanni immerſeris quantum aceto, nullum non invoco ſupplicium, niſi ſtannum multo magis corroſum reperiatur. Verum ſi hoc oleum Vitrioli vel etiam Sulphuris in uſu eſſe non mereatur propter eroſionem, quo ſe conferent Cantharides, à Galeno inter ea medicamenta relatæ, quæ ne guſtare quidem audeas propter ſummam putrefactionem atque eroſionem? tamen veterum ferè omnium atq; multorum Neoticorum praxes eas ad urinam provocandam, peniſq; ἀτονίαν & ſuſcitandam Venerem uſurpant atque commendant.*

Ph. *Nequeo diffiteri; ſed tamen parva quantitate eas preſcribunt, & non niſi aliis conveni-*

entibus rebus admixtas; quo quidem modo exhibitæ, non ſolum innoxiæ perhibentur, ſed etiam perſalutares.

Ch. *Vera prædicas, atq; ego itidem reſpondeo; Olea prædicta debita quantitate, mixtura, præparatione exhibita, tantum non corrodere corpus humanum, ſed ejus ſpiritus reficere, febres extinguere, obſtructiones aperire, putredinem arcere, venena exigere, ſitim ſedare, ulcera percurare, omneſq; illas vires cum laude ſua plurima exercere, quas illi Geſnerus epiſtola ad Coſmam medicum, aut Paracelſus in libro de Vitriolo aſcripſerunt.*

I could produce a great deal more of this kind from many of the antient Chymiſts, who were honeſt men, and to the beſt of their knowlege endeavor'd to reform *Phyſic*, and put Practitioners upon a right bottom: But they were defective in ſo many things, that their undertakings wanted ſucceſs, tho from ſome of their Writings honeſt and inquiſitive men may receive great advantage. Now tho I will not trouble you with any thing more from the Antient Chymiſts, yet I ſhall make bold to tranſcribe a Letter I lately received out of *Yorkſhire*, there being ſomwhat in it relating to the point in hand.

Vir

Tertio Non. Martii.

Vir Digniſſime,

TRactatus tuos ſummis cum deliciis & voluptate perlegi, & tuum in promovendo illo Nobiliſſimo Medicinæ ſtudio inſtitutum maxime demiror in humani generis bonum univerſale. Macte, Bone Vir, melioribus avibus, & Momos aſpernare. Te certum facio me Acidis uſum eſſe 10. *annis elapſis ſummo cum ſucceſſu; & Alkalia tantum ut abſorbentia Acidi æſtimo. Aſſiduâ experientiâ videtur quantum valet appetitus & digeſtio: & quid magis dubium hoc in caſu quam Alkalia, & quid melius Acidis? Acidum eſt ſolum fermentum Ventriculi. Quid Coward audeat dicere, nemo advertet. Omnibus in ſeculis præteritis quot morbos edomuit Acidum, non neceſſarium eſt enumerare. Virum quendam habui putridâ Febre laborantem, quem tantum Sp. Vitrioli in aquâ frigidâ (Deo favente) reſtitui. In Hæmoptoe, Hydrope, fluxu muliebri, & fere omnibus in ventriculi morbis; Scorbuto infinitos fere curavi Acidis commixtis, & in vehiculis appropriatis exhibitis. Equitem vicinum meum Calculo cum Paraliſi & Hæmorrhodali fluxu decumbentem quodam Acido ad priorem valetudinem reduxi, & ab Orco detraxi: immo quamvis in Hypocondriaca affectione Acidum culpamus, tamen quid emolumenti in iſto Proteo accidit à quodam Acido non eſt nunc enarrandi locus. Hic Acidus meus liquor omnes obſtructiones reſerat & flatum,*

Gas illud ſylveſtre compeſcit, & omnes iſtos motus irregulares componit, inſtar fulminis. Si quicquid in Praxi vel Lectione meâ occurrit, ſummâ cum ſedulitate ad te, mi bone Vir, mittetur.

Nam tui favoris ſum ſtudioſiſſimus,

Jo. Watſon.

Poſtſcript. Be pleaſed to direct a Letter to me to be left with Mr. *Ulſter* Apothecary in *Burnſly* in *Yorkſhire*, by *Doncaſter* Bag. I beg a Literal Correſpondence, and ſhall communicat to you ſome *Acid Arcana*, for that name they deſerve.

I hope what I have ſaid is ſufficient to remove that Mighty Objection about the hazard of giving Oil of Vitriol alone: But I might have ſpared my ſelf this trouble, for I am almoſt poſitive, that there is not a Phyſician in *Chriſtendom* of any buſineſs, tho never ſo great an aſſertor of the uſefulneſs of Alkalies, who has not ſome time or other made uſe of even Oil of *Vitriol*, that dangerous Acid: but how they can anſwer for it I cannot tell; for if Acids are the cauſe of Diſeaſes, how they dare with a good Conſcience give even the moſt temperat Acids to their Patients, I know not; and I am ſure themſelves can give no reaſon for it: but I believe it is from a conviction that nothing is to be done without them. Again,

if

if Acids were ſo pernicious to Mankind, as ſome would make us believe, I wonder the College of Phyſicians don't unanimouſly petition the Parliament to prohibit the Importation of *Oranges* and *Lemons* in ſuch vaſt quantities as we now have 'em.

You greatly harp upon that ſtring, that Acids held in the Mouth won't quench the violent Thirſt of Hydropical People. To which I anſwer, that it is impoſſible when the whole Maſs of Blood and *Lympha* are contaminated with Alkalious Particles, that the waſhing the Mouth only with Acids ſhould take away the Thirſt, when the parts are continually waſhed with the contaminated Juices, and conſequently the particles of the Acid muſt be ſoon obtunded. But however, nothing is more grateful or delightful to an Hydropical Perſon, than a ſlice of Lemon or ſome ſuch thing. Common Salt I allow will excite Thirſt, but not *quatenus* Acid, for Spirit of Salt will take it off as ſoon as any thing. But, Sir, I aſſure you I have ſtumbled more at Common Salt's exciting Thirſt, than at any thing elſe beſides, and therfore have ſpared no coſt in making Experiments to find out the reaſon of it; at laſt, after much labor and ſweat, I found there was no Common Salt but what had more or leſs of a curſed thing call'd *Bittern* mixt with it, of which you may be perfectly inform'd at any Salt Works. Now this *Bittern* is the moſt corroding fixt Alkaly in Nature;

and tho it be inconſiderable in quantity in reſpect of the Acid the Salt contains, yet it will fix it ſelf upon the parts after the Acid of the Salt is all diſſolv'd, and ſo excite Thirſt. Of this *Bittern* you may expect more in another place; for had I not a deſign to ſatisfy you, I would have taken no notice of it here; becauſe the allaying of violent Thirſts I only attribute to manifeſt Acids, and common Salt not being one of that ſort, it matters not whether it will allay Thirſt or not. I love not repetition, but for once I ſhall be guilty of it. You may remember in another place I tell you, that thoſe things which by Diſtillation afford a greater quantity of Acid than of Alkalious Subſtances, are to be reputed Acids, *& vice verſâ:* now common Salt affords nineteen parts in twenty more of Acid than of Alkaly, and therfore is an Acid; but before Diſtillation the Acid is ſo invelop'd, tho it contains ſo much of it, that it is not diſcernable to the Taſt. I believe no one that has blackt his Fingers, will deny *Guaiacum* to be an Acid, but at the ſame time I believe it was never preſcribed to allay Thirſt. Things, tho of the ſame Tribe, are differently to be adminiſtred, according as they are differently ſpecificated by Nature. It is not a certainty of the knowlege whether *Acids* or *Alkalies* are the Cauſes of Diſeaſes, that will preſently make a man a Phyſician, tho it will go a great way towards it, but a thorow knowlege of the different ſpe-

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cifications of Nature muſt alſo concur.

You charge me with contradicting my ſelf, after which you ſhould have bin ſure to have avoided any ſuch thing your ſelf; but however in one place you ſay, that Oil of Vitriol diſſolves the Blood, and in another that it coagulats it: now I ſhall take no advantage of this ſlip, but conclude my Remarks upon this Paragraph, having already ſpun them out to too great a length.

The next Paragraph is too long to tranſcribe, and there being little material in it, I ſhall only make ſome general Remarks upon what I find worth taking notice of.

You firſt of all charge me with ſaying, that neither too much nor too little Acid muſt be given, which is the ſum of a Page or two, *viz.* 19, and 20. In anſwer to which, I do aſſure you, that no *Virtuoſo* need be aſhamed to imploy his time in conſidering the due proportions of things requiſit to accompliſh the buſineſs he undertakes. Now in Phyſic he that dos not underſtand the true Rules of Proportion, deſerves not the Name of a Phyſician. He that will preſcribe an Ounce of *Jallap* inſtead of a Dram, deſerves to be hang'd; and who but a mad man will give a Pound of Oil of Vitriol, when forty Drops in a pint of Water is all that is deſired? But, Sir, prudent Phyſicians have a wonderful Director in relation to manifeſt Acids, and indeed to every thing elſe, *viz.* the Stomach, which is a nice

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judg of things; that which is agreable to it being receiv'd and retain'd with pleaſure, but that which is diſagreable rejected and abhor'd. However, it muſt not be overloaded with thoſe things in which it takes the greateſt delight. Now Manifeſt Acids it more covets and delights in than in any thing beſides; but when it has enough to ſupply its wants, it gives ſufficient item of it: and if the Stomach be rightly conſulted, it is impoſſible the Blood ſhould be overcharg'd with them; but if at any time People are not ſufficiently cautious of that matter, but load the Stomach with more manifeſt Acids than the Body has occaſion for, it won't fail of rejecting them by Vomit. This Matter may at any time be ſafely experimented by an over-large draught of Vinegar, in any Caſe where the Body has no need of it, or at leaſt in ſo great a quantity at a time; for which reaſon I tell you that the Blood cannot ſuperabound with Acids, as it's plain in fact it dos not, neither in a Morbid nor Healthy State, becauſe the Stomach will not receive or retain more than it has occaſion for: but tho it cannot overdo, yet it is very frequently defective in conveying a ſufficient quantity into it, either thro its own fault, or the fault of the Phyſician who forbids the uſe of them, and ſo the whole Body ſuffers damage. How greedily will the poor Stomach imbrace the Juice of an *Orange*, or the like, in a Fever? and how ſcornfully will it reject and abhor any thing of

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a contrary nature? Nay, the uſefulneſs of Acids is ſo evident and extenſive, that it is almoſt a ſhame they ſhould now want a Champion, after there has, for many years together, bin ſo great a noiſe made about *Experimental Philoſophy*, and even public Societies, in many Nations, erected on purpoſe to cultivat it.

But to return: I am apt to believe, if you take the following advice, you will ſcarce be guilty of an Error in the giving of manifeſt Acids, *viz.* always give them in ſuch quantities as the Stomach will receive them with pleaſure and delight, and never refuſe them when the Stomach earneſtly craves them; this is the method I obſerve at preſent, and believe I ſhall never recede from. I confeſs it may be lawful ſomtimes in very extraordinary caſes to ſtrain a point beyond what Nature craves; but herein if the thing ſhould chance to be overdone, all the damage that can inſue is occaſioning a puke or two. This you may take from my conſtant experience, and believe me I would not willingly impoſe upon you and the World. But in general, it is always neceſſary for us Phyſicians, who are, or at leaſt ſhould be, only Nature's Servants, ſtrictly to obſerve her Neceſſities, and not to outrun her Dictats.

Without making the leaſt Experiment to convince me of being in an error, you go on to range *Saſſafras* among the number of Alkalies:

lies: but when, from Experience, I aſſure you that *Saſſafras* is an invelop'd Acid, I think you ought not to trouble me and the World with conjectures; and were it not that I value and reſpect you, I would not take the leaſt notice of them. As for the remaining part of this Paragraph, I think I need take no notice of it, having ſufficiently anſwered every thing that looks like an Objection in it in my former Remarks; and therfore ſhall, in your own words, conclude, that if I have any where expreſt my ſelf indecently, I hope you won't attribute it to rudeneſs or diſreſpect: for I aſſure you, I think you a Bleſſing to the Country where you live, and doubt not but I ſhall ſee you an Honor to our Profeſſion.

I ſhould have concluded, but that you alſo begin again; and that I may not be unmannerly, I ſhall for once keep you company to the end of your Journy, but deſign no more to trouble the World with Diſputes; and if any thing more of that nature offers it ſelf, worth taking notice of, it ſhall be included in ſome Practical Diſcourſe. And ſo we paſs on to your Reflections upon the Firſt Part of my *Eſſay* of *Alkaly and Acid*: And firſt,

Of

Of the SMALL POX.

WHAT I think worth taking notice of at preſent in your Reflections upon this matter is, That you honeſtly allow the giving of *Acids* in a *Flux Pox*, the only dangerous one, and from which our Patients are in moſt hazard: but in *Benign* Poxes you commend me for doing nothing, and indeed I ſhall always do ſo where my Patients have no occaſion for Medicins. I am a Friend to *Rad. Serpentariæ Virg.* as well as you, in all thoſe Caſes where there is an occaſion for *Cardiacs*; that and *Saffron* being as Noble Cordials as perhaps are known; yet they muſt never be given but with due caution and circumſpection. But I am a profeſſed and declared Enemy to *Pul. è Chelis*, and all things of that kind. And once again I aſſure you, that *Rad. Serpentar.* upon diſtillation will appear to be a ſulphureous Acid; and in Caſes where the Pox dos not come out kindly, and the Pulſe is low, an Infuſion of that Root in Vinegar, or ſome ſuch thing, will do very good feats. I confeſs the Teſtaceous Pouders in *Benign Poxes*, are frequently given without any evil conſequence; but the reaſon is, that the Patients are generally in ſo good a condition, and have ſo much ſtrength of Nature to ſupport them, that it is almoſt impoſſible to kill them: but what fatal work they

they make in *Flux Poxes*, or any other of a malignant kind, is too frequently ſeen. Here obſerve the difference between your Method and mine, even by your own confeſſion. Mine is principally ſerviceable in dangerous Caſes, Yours where there is no danger. Granting this, you may ſtill keep your Method to your ſelf, and I will ſtick to that which will avail in hazardous Caſes, and only look on in thoſe where my Patient needs no help. You at laſt blame me for giving *Syrupus è Meconio* in the beginning of the Small Pox; but are too haſty in cenſuring me on that ſcore, for of all men I am leaſt to be blam'd for tampering with Opiats. If you remember, the occaſion of my preſcribing *Diacodium* in the beginning of the Small Pox was this, *viz.* If the Patient's Stomach be overcharg'd or clog'd with viſcous Matter, I preſcribe an eaſy Vomit; and after its operation is over, to allay the hurry and diſorder occaſion'd by it, I preſcribe a little *Diacodium*, but never proſecute it afterwards, as ſome people fatally do. I have not time, elſe I would remark upon you Line by Line; but having taken notice of what is material, I ſhall let fall the reſt, and leave you and your Friends to make the beſt of it; yet cannot forbear to aſſure you, that two or three of my greateſt Enemies in this Town, have of late preſcribed Acids plentifully to their Patients in the Small Pox, and at the ſame time have rail'd at me for ſo doing: whether this be like Gentlemen, I leave the World to judg.

Of

Of the SCURVY.

IN this matter you perfectly agree with me in my Practice, only you would bring in the *Bitter Herbs* as great aſſiſtants in the cure of this Diſtemper, and theſe Herbs you will have to be Alkalies. As for *Bitters* I greatly approve of 'em in their proper places. But having before put you in a way to be ſatisfied that they are not Alkalies but Acids, I ſhall not here trouble you any more about it. Nay, if we can but once agree in the main Point of curing Diſeaſes by any particular ſort of Medicin, tho you account it an Alkaly and I an Acid, we ought not to fall out, but give God thanks we are able to perform the Work we pretend to: Yet at the ſame time I think a Phyſician ought as much as may be, to know the true reaſon why a Medicin performs ſuch and ſuch Operations. And I muſt confeſs I ſhall be very unwilling, upon any occaſion, to preſcribe a Medicin, for the manner of whoſe operation I am not able to account. As for what you ſay concerning the Scurvy that attends the People in the North part of *Devonſhire*, I think I have ſufficiently accounted for it already; and I doubt not but impartial Readers, who will give themſelves the trouble of peruſing my ſeveral Tracts, will acknowlege it.

Of

Of RHEUMATISMS.

WELL met my good Friend! I muſt confeſs you have almoſt com to an agreement with me in ſeveral things before, yet here you ſay your Practice and mine are the ſame, but don't mention how long you have uſed this Method in the cure of this Diſtemper. However, I can't preſume you had it from me, but that it was your own Judgment that led you to it. I hope, for the good of the Country where you live, that in a little time we ſhall agree in more things than the cure of *Rheumatiſms*: yet I would have you remember, that in another place you blame Acids as the cauſe of Pain, and here you profeſſedly uſe them in the cure of a Diſtemper, the principal Symptom that attends which is exquiſit Pain.

Of CONSUMTIONS.

A *Conſumption* is a Diſtemper, the progreſs of which in this our Iſland I have oftentimes heartily bewail'd. It is likewiſe that of which moſt of my Predeceſſors (as before obſerved) have died, even in the prime of their Age; and is alſo what I have more cauſe to be afraid of than of any thing beſides: upon which ſcore I have ſpent a great many days and nights

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in conſidering the Nature and Cauſe of this Fatal Diſtemper, which deprived me of the beſt of Fathers while but a Child, and alſo of ſome other of my deareſt Friends. Now the reaſon I have not hitherto ſpoken ſo much about it as of other Diſtempers, is, becauſe I have bin ſome years in collecting Obſervations in order to write a particular Tract of *Conſumptions*, and was unwilling to anticipat what I had to ſay upon ſo weighty a Subject, tho I was able to ſay as much concerning that as any Diſeaſe of which I have treated. Nay, I am apt to believe, I may without vanity ſay, that I have cur'd more true Conſumptions in the ſpace of one Year laſt paſt, than any Phyſician in *England* has done, and that by the means of Acids either Manifeſt or Invelop'd; an ample account of which, as ſoon as my buſineſs will permit, I deſign to make public. But however I ſhall ſpend a little time in remarking upon what you have ſaid. You allow Acids to be proper and beneficial in thoſe Conſumptions not attended with a *Catarrh*, which is a conceſſion very few Phyſicians beſides will give their aſſent to; or at leaſt if they will, they are but lately come over. But the main thing you harp upon being, that manifeſt Acids are not proper to be uſed in Catarrhs, I ſhall a little conſider that matter: For tho a Catarrh will cauſe a Conſumption or waſting of the Parts of the Body, yet it is not what we in *England* commonly

call a *Conſumption*; the Diſtemper called *Tabes Anglicana*, or the *Engliſh Conſumption*, proceding from an ulceration of the Lungs: and in theſe caſes for the moſt part we have no Catarrh, tho ſometimes it dos attend them; but one of the principal Symptoms of this Diſtemper is the diſcharge of a great quantity of tough, yellow and greeniſh *Pus*, in which caſes you allow Acids to be proper: nay tho there be a Catarrh attending them, yet it is not from that that we make our fatal Prognoſtics, but from the good or evil nature and quantities of the aforeſaid *Pus*, with ſome other Symptoms not neceſſary here to enumerat. Nay it is not uncommon for our Conſumptive People to bring up from their Lungs by coughing, as perfect Chalk Stones as ever were found in the joints of Perſons ſeverely handled with the Gout; which Chalk I am ſure was never the product of an Acid. But however, not to inſiſt any longer now upon this matter, it not being the proper place for it, I ſhall return to the buſineſs of Catarrhs. I have before taken notice, as you your ſelf here own, that the *Saliva* is a noble Acid, and convey'd to the Mouth for a moſt noble purpoſe, *viz.* to be mix'd with the Food in chewing, and afterwards in the Stomach, to turn it into a ſubſtance fit for the nutrition of our Bodies. Now if on any occaſion the Glands of the *Pharynx*, and other Glands about the Mouth are over-relax'd that they can't retain the *Lympha* in their proper

proper receptacles, but let it fall continually from them, being what we call a Catarrh or Defluxion, this muſt inevitably cauſe a tickling Cough, not becauſe it is an Acid, for even a defluxion of the moſt ſimple Water would produce the ſame effect; but the Body being continually robb'd of this moſt noble Juice, cannot fail of being waſted and decay'd by it. And that the cauſe of a ſimple Catarrh procedes from a relaxation of the texture of the Glands only, and not from the Lympha (contain'd in, and continually brought to them) being overacid, the following eaſy Cure is ſufficient to demonſtrat, *viz.* Let ſome *Maſtic* and *Olybanum* be made into impalpable pouder, and with a long Quill, or a hollow Inſtrument made on purpoſe, let it be blown upon the *Larinx* at night going to Bed; the continuance of which for ſome Nights together will frequently do wonders in the cure of Catarrhs. I confeſs this was none of my own contrivance, but communicated to me by my worthy Friend Dr. *Jones*, who is a man of the happieſt invention I ever met with. Now the only deſign in the uſing of this Pouder is, that being immediatly convey'd to the Parts affected, it ſhould cauſe them to contract themſelves, or regain their Tone, and of conſequence the Catarrh will ceaſe. [But becauſe the uſe of this Pouder is ſomewhat troubleſom, I have of late contrived the following Lozenges to be ſubſtituted in its room, from which I have

observed very remarkable effects in all sorts of Catarrhs.

℞ *Terræ Japon. Gum. Tragacanthi Pul. ana dracm. duas; Olei Cinnamomi gut. quatuor; Sacchari Rosati unc. unam semis; Syrupi Balsamici q. s. f. Massa, ex quâ formentur Trochisci, quorum detineatur unus in ore frequenter.*]

This is not all I have to say concerning Catarrhs, but I think as much as is necessary at this time. You tell a famous Story of a Person that had a Catarrh upon him by the over plentiful use of *Sevil* Oranges; but are so deficient in relating several circumstances necessary to be known upon such an occasion, that if I have not already said enough to solve this difficulty, I shall leave you to make your best advantage of it, being so tir'd that I can go no further. And I do assure you it shall be the last controversial Discourse I will write; for if ever I meet with any Objections against my Hypothesis worth taking notice of, I shall clear my self from them as well as I can, in those Practical Discourses that I design (God willing) hereafter to publish. I confess I am over head and ears in debt to the Public, having promised several things which many have expected to come abroad long before this time, and indeed I design'd they should; but several unexpected Accidents have interven'd

ven'd, which have put me by, and hindred me in my undertakings, yet in due time I will indeavor to fulfil what I have promiſed. I ſhall conclude with aſſuring you, that I am now ſo abſolutely confirm'd in the truth of my Hypotheſis, that I am ſure it is not in the power of any man to overthrow it; tho at the ſame time I muſt own I may have bin deficient in ſome circumſtances relating to the explication of it: but Time and further Obſervation, I hope, will clear all thoſe things. Thus wiſhing you to weigh all things in the Balance of Reaſon and Experience, before you paſs a Cenſure, is all at preſent from

Your real Well-wiſher,

Villers-ſtreet York Buildings,
May 12. 1698.

Jo. Colbatch.

POSTSCRIPT.

DR. *Coward* took occaſion to make ſome wonderful Reflections upon me and my Hypotheſis, in order to recommend a Medicin of his own invention to the World. This Medicin which he calls *Tinctura Sanitatis*, is as Noble in its Nature, as the Author is Generous and Great in his Temper. I can aſſure the World it is nothing elſe but the moſt ridiculous kind of *Sal volatile Oleoſum* that ever I ſaw; and were it not that I am unwilling to expoſe a Member of the College, I would print the Receit, which was communicated to me by one that has bin imploy'd by him to prepare it. The Doctor cannot but own I am more generous than he has bin, in that I have not publiſh'd the Story relating to Mr. *Bat* and Mr. *Lord* alſo. But ſuch poor Enemies as him and *Lee*, are rather to be pitied than any thing elſe. However, *Sal volatile oleoſum* being a Medicin in great vogue with almoſt all other Phyſicians, I ſhall preſume to make ſome few reflections upon the main Ingredient in it, which is the *Volatil Spirit* or *Salt* of *Sal Armoniac*. Now every body knows that the Volatil Spirit, or Salt of *Sal Armoniac* is little elſe but the Volatil Spirit or Salt of *Urin*, which at beſt is no more than an Excrement

of

of our Bodies. But however, there is ſomthing more that deſerves our taking notice, in order to deter us from the uſe of this Medicin, which is now ſo much in faſhion, to the no ſmall detriment of many. The *Sal Armoniac*, from which the Volatil Spirit or Salt is extracted, is a Compoſition of *Urin*, *Soot*, and *Sea-Salt*; and by the addition of a fixt *Alkalizat Salt* or *Quicklime* (which is the uſual method in making Spirit and Salt of *Sal Armoniac)* the Acid of the Sea-Salt is ſo intangled that it readily lets go from it the Volatil Spirit or Salt of the Urin and Soot; but that of the Soot is very inconſiderable in quantity to that of the Urin. Now the Urin made uſe of for the aforeſaid purpoſe, is generally procur'd from the public Houſes, which is a jumble of all together, *viz.* of People laboring under all kinds of habitual Diſeaſes, as *Pox*, *Gout*, *Scurvy*, *Scrubbado*, &c. And there is ſcarce a Diſeaſe attending Man's Body, but ſome of the morbific Particles are imparted to the Urin; and if the Urin in general partakes of them, the Spirit and Salt muſt do ſo in a more eminent degree: ſo that, I think, a neceſſary conſequence of giving ſuch a Medicin muſt be ſowing the Seeds of Diſeaſes in Mens Bodies. And I believe in my Conſcience that one great reaſon of the late frequency of ſome Tyrannical Diſeaſes, more than heretofore was wont to be, has proceeded from the exorbitant uſe of Spirit and Salt of *Sal Armoniac*, and thoſe o-

ther things of which they are prime ingredients. Now I desire that our Ladies, who are subject to Hysterical Distempers, would well consider this matter; because they are generally arm'd with it, to fright away that Distemper, of which I am afraid it is in great measure, if not altogether, the cause, or at least of the increase of the saline Particles of the same kind with which their Blood abounds. I shall say no more at this time, but hope this further Hint, to deter people from the use of Volatil Alkalious Spirits and Salts, of which the Spirit and Salt of *Sal Armoniac* are most common, may not be unserviceable.

I have made use of the words *Spirit and Salt of Sal Armoniac*, as of things somwhat different, tho indeed there is no real difference between them; that which is called Spirit being only a proportion of the Salt diluted in a proper quantity of Phlegm: this is well known to Physicians, but it is probable that other Persons into whose hands these Papers may come, may labor under some difficulty about it, without this Intimation.

FINIS.